PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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PCT

NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	26 July 2006 (26-07-2006)
Applicant's or agent's file reference 2388-108	**IMPORTANT NOTIFICATION**

International application No	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/CA2005/000353	08 March 2005 (08-03-2005)	26 March 2004 (26-03-2004)

Applicant
KHAN, ASLAM ET AL

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the *PCT Applicant's Guide*.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the IPEA/CA Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001(819)953-2476	Authorized officer Chantal Hébert (819) 953-4957

Form PCT/IPEA/416 (January 2004)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2388-108	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No PCT/CA2005/000353	International filing date *(day/month/year)* 08 March 2005 (08-03-2005)	Priority date *(day/month/year)* 26 March 2004 (26-03-2004)
International Patent Classification (IPC) or national classification and IPC IPC: ***A61H 1/00*** (2006 01) , ***A61H 23/02*** (2006 01) , ***A61F 5/00*** (2006 01)		
Applicant KHAN, ASLAM ET AL		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36

2. This REPORT consists of a total of 4 sheets, including this cover sheet

3. This report is also accompanied by ANNEXES, comprising:

   a [X] *(sent to the applicant and to the International Bureau)* a total of 10 sheets, as follows:

   [X] sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

   [ ] sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. 1 and the Supplemental Box.

   b [ ] *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))
   , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- [X] Box No. I Basis of the report
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

Date of submission of the demand 02 December 2005 (02-12-2005)	Date of completion of this report 26 July 2006 (26-07-2006)
Name and mailing address of the IPEA/CA Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001(819)953-2476	Authorized officer Tanya Hanham (819) 953-4506

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/CA2005/000353

Box No. I Basis of the report

1 With regard to the **language**, this report is based on:

[X] the international application in the language in which it was filed

[ ] a translation of the international application into , which is the language of a translation furnished for the purposes of:

[ ] international search (Rules 12.3(a) and 23.1(b))

[ ] publication of the international application (Rule 12.4(a))

[ ] international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2 With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

[ ] the international application as originally filed/furnished

[X] the description:

[X] pages 1 - 5, 9 - 25, 32 (abstract) as originally filed/furnished

[X] pages* 6, 7, 7a, 8 received by this Authority on 9 June 2006

[ ] pages* received by this Authority on

[X] the claims:

[ ] pages as originally filed/furnished

[X] pages* 26-31 as amended (together with any statement) under Article 19

[ ] pages* received by this Authority on

[ ] pages* received by this Authority on

[X] the drawings:

[X] pages 1/9 - 9/9 as originally filed/furnished

[ ] pages* received by this Authority on

[ ] pages* received by this Authority on

[ ] a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3 [ ] The amendments have resulted in the cancellation of:

[ ] the description, pages

[ ] the claims, Nos.

[ ] the drawings, sheets/figs

[ ] the sequence listing *(specify)*:

[ ] any table(s) related to sequence listing *(specify)*:

4 [ ] This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

[ ] the description, pages

[ ] the claims, Nos

[ ] the drawings, sheets/figs

[ ] the sequence listing *(specify)*:

[ ] any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1 - 18	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	1 - 18	YES
	Claims	NONE	NO
Industrial applicability (IA)	Claims	1 - 18	YES
	Claims	NONE	NO

2. Citations and explanations (Rule 70.7)

D1: CA2206889 (ELLIOT) 18 July 1996 (18-07-1996)

Novelty (N)

The published document D1 is regarded as being the closest prior art and discloses a spinal adjusting instrument. The instrument comprises a hand held portion with a moveable stylus at one end, a stylus driving apparatus, a display array to indicate proper alignment of the hand held portion and a fixed controller portion is used to program the proper alignment of and energy to be applied via the stylus in the hand held portion. The subject matter of the claims differs from D1 in that the claimed invention comprises a stand with multiple degrees of freedom, the stylus is collapsible and the impulse waveform is sinusoidal. Consequently, the subject matter of claims 1 - 18 is novel in respect of the prior art as defined in the regulations (**PCT Rule 64**) and thus meets the requirements of **PCT Article 33(2)**.

Inventive Step (IS)

The present application is considered as involving an inventive step (**PCT Article 33(3)**) because D1 does not disclose any incentive in the direction of the invention.

Industrial Applicability (IA)

The subject matter of claims 1 - 18 is considered to be industrially applicable and thus fulfills the requirements of **PCT Article 33(4).**

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

There are two pages in the specification with the page number 32: the last page of the claims and the abstract.

temperatures rise above an allowed setting. The latter feature is important for medical instruments used in the proximity of the body.

All devices discussed here have been hand held devices (HHDs), which generally lack precision in terms of the direction of delivery of impulses to the body for spinal and upper cervical treatment. Elliott is perhaps the best of these, since it offers some visual feedback on device direction. Operation is not fail-safe, however. Elliott also suggests mounting the device on a fixed stand, to reduce operator fatigue or directional inaccuracies, but a practical means of preventing patient injury from such a fixed device has not been considered.

Lastly, none of the devices described here have considered automation and data validation as an integral part of their design. Without comprehensive data validation, it is difficult to ensure safe, reliable and consistent instrument performance, as is highly desirable in spinal and upper cervical impulse treatments.

SUMMARY OF THE CURRENT INVENTION

The present invention comprises a spinal and upper cervical impulse treatment device, which consists of a stand having a vertically oriented arm in which the upper end is capable of being raised and lowered. The horizontally oriented arm is coupled to the vertically oriented arm and is movable in an axial direction relative to the vertically oriented arm, which

is rotatable about its own axis and pivotal about an axis of the vertically oriented arm. The device is coupled to a distal end of the horizontally extending arm and is pivotal about an axis through its connection to the horizontally extending arm. The device has a stylus extending from a lower end thereof and is operative to drive the probe in both a linear and rotational direction. A display means is used for inputting stylus alignment information and for displaying when the stylus is aligned with a patient.

The stylus may be collapsible upon meeting resistance of a predetermined force value.

The stylus may have an inner sleeve slidable within an outer sleeve, in which the inner sleeve may be held in an extended position relative to the outer sleeve by biased friction couplings released upon application of a threshold force on the inner sleeve relative to the outer sleeve.

The biased friction couplings may include a plurality of ball bearings biased against indents in the wall of the stylus tube.

The device may include a display, which consists of a touchscreen mounted on the top of the device that includes a microprocessor programmed to recognize correct alignment and to permit operation to commence only when proper alignment is achieved.

The device may also include a linear voice coil actuator and a second voice coil actuator mounted to the stylus that is operative to transmit sinusoidal impulse waveforms along the stylus linear axis.

An external computer is coupled to the device and may be used for entering digitized data points relating to caliper measurements of aspects of the human body and transferring these data points from the external computer to the device.

BRIEF DESCRIPTION OF THE DRAWINGS

Further features and advantages will be apparent from the following detailed description, given by way of example, of a preferred embodiment taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a side elevation view of the overall stand, armature and device head, shown in relation to a patient being treated and a remote computer used to determine automated treatment parameters;

Figure 1A is a top view of the apparatus in Figure 1;

Figure 2 is a front view of the device head, incorporating a controller with a local user interface, a transducer and stylus, where the latter applies impulses to a patient body;

Figure 2A is a side view of the safety coupling incorporated in the stylus in Figure 2;

Figure 3 is a side view of the device head;

WE CLAIM:

1. A spinal and upper cervical impulse treatment device, comprising:

(a) a stand having a vertically oriented arm an upper end of which is capable of being raised and lowered;

(b) a horizontally oriented arm coupled to said vertically oriented arm and moveable in an axial direction relative to said vertically oriented arm, rotatable about its own axis, and pivotal about an axis of said vertically oriented arm; and

(c) a spinal and upper cervical impulse treatment device coupled to a distal end of said horizontally extending arm and pivotal about an axis through its connection to said horizontally extending arm, said spinal and upper cervical impulse treatment device having a stylus extending from a lower end thereof and said spinal and upper cervical impulse treatment device operative to drive said stylus in both a linear and rotational direction, a display means for inputting stylus alignment information and for displaying when the stylus is aligned with a patient.

2. A spinal and upper cervical impulse treatment device according to claim 1, wherein said stylus is collapsible upon meeting resistance of a predetermined force value.

3. A spinal and upper cervical impulse treatment device according to claim 2, wherein said stylus has an inner sleeve slidable within an outer sleeve, said inner sleeve held in an extended position relative to said outer sleeve by biased friction couplings releasable upon application of a threshold force on said inner sleeve relative to said outer sleeve.

4. A spinal and upper cervical impulse treatment device according to claim 3, wherein said biased friction couplings include a plurality of ball bearings biased against indents in the wall of said stylus tube.

5. A spinal and upper cervical impulse treatment device according to claim 1, wherein said display is a touchscreen mounted on a top of said spinal and upper cervical impulse treatment device.

6. A spinal and upper cervical impulse treatment device according to claim 1, including a microprocessor programmed to recognize correct alignment and to permit operation to commence only when proper alignment is achieved.

7. A spinal and upper cervical impulse treatment device according to claim 1, including a linear voice coil actuator mounted to said stylus and operative to transmit sinusoidal impulse waveforms along the stylus linear axis.

8. A spinal and upper cervical impulse treatment device according to claim 1, including a second voice coil actuator mounted to said stylus and operative to transmit rotational sinusoidal impulse waveforms to said stylus.

9. A spinal and upper cervical impulse treatment device according to claim 1, including an external computer coupled to said spinal and upper cervical impulse treatment device, said external computer for entering digitized data points relating to caliper measurements of aspects of the human body and transferring these data points from said external computer to said spinal and upper cervical impulse treatment device.

10. A spinal and upper cervical impulse treatment device, comprising:

(a) a stand having a vertically oriented arm an upper end of which is capable of being raised and lowered;

(b) a horizontally oriented arm coupled to said vertically oriented arm and moveable in an axial direction relative to said vertically oriented arm, rotatable about its own axis,

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and pivotal about an axis of said vertically oriented arm; and

(c) a spinal and upper cervical impulse treatment device and controller coupled to a distal end of said horizontally extending arm and pivotal about an axis through its connection to said horizontally extending arm, said spinal and upper cervical impulse treatment device having a stylus extending from a lower end thereof and said spinal and upper cervical impulse treatment device operative to drive said stylus in both a linear and rotational direction, a display means for inputting stylus alignment information and for displaying when the stylus is aligned with a patient.

11. A spinal and upper cervical impulse treatment device according to claim **10**, wherein said stylus is collapsible upon meeting resistance of a predetermined force value.

12. A spinal and upper cervical impulse treatment device according to claim **10**, wherein said stylus has an inner tube and an outer sleeve, said outer sleeve having a plurality of ball bearings biased against indents in the wall of said inner tube.

13. A spinal and upper cervical impulse treatment device according to claim **10**, wherein said display is a touchscreen mounted on a top of said spinal and upper cervical impulse treatment device.

14. A spinal and upper cervical impulse treatment device according to claim 10, including a microprocessor programmed to recognize correct alignment and to permit operation to commence only when proper alignment is achieved.

15. A spinal and upper cervical impulse treatment device according to claim 10, including a linear voice coil actuator mounted to said stylus and operative to transmit sinusoidal impulse waveforms along the stylus linear axis.

16. A spinal and upper cervical impulse treatment device according to claim 10, including a second voice coil actuator mounted to said stylus and operative to transmit rotational sinusoidal impulse waveforms to said stylus.

17. A spinal and upper cervical impulse treatment device according to claim 10, including an external computer coupled to said spinal an upper cervical impulse treatment device, said external computer for entering digitized data points relating to caliper measurements of aspects of the human body and transferring these data points from said external computer to said spinal and upper cervical impulse treatment device.

18. A spinal and upper cervical impulse treatment device, comprising:

(a) a spinal and upper cervical impulse treatment device having a stylus extending out therefrom, said stylus operative to receive signals from a controller, mounted on said spinal and upper cervical impulse treatment device, when said stylus is in alignment with a patient causing said stylus to move both axially and rotationally, and a display on an exterior surface of said spinal and upper cervical impulse treatment device operative to receive signals from said controller and to display alignment, a transducer coupled to said stylus operative to impart linear and rotational movement to said stylus; and

(b) a stand supportable from a support surface and having a coupling end couplable to said impulse controller and display device with multiple degrees of freedom, enabling said impulse controller and display device to move in multiple directions so as to align said stylus with a patient on a bed proximate said impulse controller and display device.